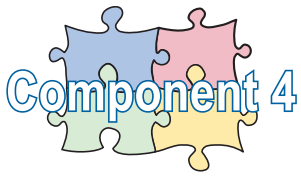

Chapter 6: Developing Program Goals and Implementation Strategies

Purpose: This program component defines the goals and performance milestones to measure progress in IDDE program implementation during the first permit cycle, and selects the most appropriate and cost-effective strategies to find, fix and prevent illicit discharges. The goals and strategies ensure that scarce local resources are allocated to address the most severe illicit discharge problems that cause the greatest water quality problems in the community.

Method: The basic method is to analyze the results of the IDDE audit, desktop analysis and local water quality conditions to develop realistic, achievable and measurable goals for the program. The public and other stakeholders should be involved in the goal setting process. Once goals are selected, program managers need to select the appropriate implementation strategies and develop a timeline to make them happen. Both goals and strategies should closely align with the type and severity of water quality problems and local watershed management priorities. The probable contribution of illicit discharges to specific water quality problems should be estimated or modeled to determine the degree to which control efforts can meet local TMDLs, bacteria standards for water contact recreation, or other local water quality concerns.

Desired Product or Outcome(s): Agreement on program goals, measurable indicators and implementation strategies that address four key areas:

- Overall program administration
- Outfall assessment
- Finding and fixing illicit discharges
- Prevention of illicit discharges

Budget and/or Staff Resources Required: Staff effort to draft the goals and strategies, conduct needed meetings, respond to comments and finalize ranges from two to six weeks. Goals and strategies should be revisited and updated annually and at the end of each permit cycle. Staff and budget costs are not anticipated to be high unless a fundamental shift in program goals occurs.

Integration with Other Programs: Goal setting is always a good opportunity for public involvement, storm water education and watershed outreach. Effective implementation strategies often involve cost sharing with other departments and even other communities for monitoring equipment and lab facilities, hotlines, and education (e.g., public health/septic system programs).

6.1 Overview of Goals and Strategies Development

Communities can define program goals and implementation strategies once they understand the extent of their illicit discharge problem and how it influences local water quality. Initial program goals should be realistic and provide specific completion milestones to measure program compliance. Measurable goals enable a community to track and evaluate permit compliance over time, and to reassess and modify the program over time. The most basic measure of program effectiveness is to assess whether program goals are being met. So, if a program goal is to walk all stream miles and inventory all outfalls in the MS4 within the first permit cycle, this becomes a benchmark that determines program effectiveness. If a community finds that they only managed to walk and inventory 80% of stream miles, the program may need to be modified so that a full screening sweep is completed in a permit cycle, or they may need to adjust the goal or benchmark.

6.2 Develop Initial Program Goals

The NPDES Phase II MS4 permit regulations grant communities considerable flexibility to develop program goals, as long as they are defined in a measurable way to gauge permit compliance and program effectiveness. EPA (2000e) states that goals "should reflect the needs and characteristics of the operator and the area served by its small MS4. Furthermore, they should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure."

With this in mind, a series of representative goals that might be set for an IDDE program are presented in Table 17, along with proposed milestones. Four broad types of goals should be developed for every program:

1. Overall program administration
2. Outfall assessment
3. Preventing illicit discharges
4. Finding and fixing illicit discharge

The assumed timeframe is based on a five-year permit cycle. Some of the program goals outlined in Table 17 are considered essential while others are optional or recommended. Communities should feel free to adapt these suggested program goals to reflect their unique conditions and capabilities, or create new ones. The key point is that program goals should always have a timeframe to serve as a benchmark for whether the goal has been achieved.

Implementation strategies are designed to achieve program goals, and vary depending on the types and severity of illicit discharge problems in the community. These are outlined in more detail in the next section.

Table 17: Measurable Goals for an IDDE Program		
EXAMPLE MEASURABLE GOALS	**TIMEFRAME**	**PRIORITY**
Goals related to overall program administration		
Audit existing capabilities and identify needs	Immediately	●
Designate one program head and identify key support staff		●
Develop a complete list of ongoing activities related to IDDE		❍
Coordinate and communicate with other affected agencies	At program start up and continuously and regularly after that	●
Develop a projected 5-year budget		●
Secure funding to match 5-year goals		●
Draft and promulgate new or modified ordinance	Year 1	●
Establish a tracking and reporting system	Year 1	●
Goals related to outfall assessment		
Define and characterize drainage areas or sewer sheds	Year 1	●
Walk all stream miles	Begin in Year 1 and complete first screening by end of permit cycle. Repeat once per permit cycle	●
Develop a digital (e.g., GIS) map of all outfalls, land use, and other relevant infrastructure	Year 1 and continuously and regularly after that	●
Secure analytical laboratory services either internally or by arrangement with a private laboratory	Initiate in conjunction with field screening	●
Sample and trace the source of a percentage of flowing outfalls each year of permit cycle	Initiate during first permit cycle and expand and enhance where problems are observed	●
Conduct regular in-stream assessments		❍
Conduct investigations at a percentage of non-flowing outfalls with poor in-stream water quality to look for intermittent flows		❍
Integrate all collected stream data and citizen complaints into the GIS system	Initiate during first year and expand and enhance with time	❍
Goals related to preventing illicit discharges		
Distribute educational materials to citizens and industries	Initiate during first year and expand and enhance with time	❍
Conduct storm drain stenciling	Initiate during first permit cycle and expand and enhance where problems are observed	❍
Hold hazardous waste collection days at least annually		❍
Conduct upland subwatershed site reconnaissance surveys to better characterize generating site potential		❍
Goals related to finding and fixing illicit discharges		
Develop a spill response plan and coordinate emergency response with other agencies	Immediately	●
Remove all obvious illicit discharges	Ongoing in conjunction with field screening and in response to hotline reports	●

Table 17: Measurable Goals for an IDDE Program		
EXAMPLE MEASURABLE GOALS	**TIMEFRAME**	**PRIORITY**
Train staff on techniques to find the source of an illicit discharge	Initiate during first year and expand and enhance with time	●
Repair a fraction of the illicit discharges identified through field screening or citizen complaints	Initiate during first permit cycle and expand and enhance where problems are observed	●
Establish a hotline for public to call in and report incidents (consider establishing performance standards, such as guaranteed response time)	Initiate during first year and expand and enhance with time	❍
Inspect and dye-test all industrial facilities	Initiate during first permit cycle and expand and enhance where problems are observed	❍
Develop a system to track results of on-site inspections	Initiate during first year and expand and enhance with time	❍
Establish an Adopt-a-Stream program	Initiate during first permit cycle and expand and enhance where problems are observed	❍
Establish pre-approved list of plumbers and contractors to make corrections	Initiate during first year and expand and enhance with time	❍
Key: ● Essential ❍ Optional but Recommended		

Ultimately, IDDE program goals should be linked to water quality goals. Some common examples of water quality goals include:

- Keep raw or poorly-treated sewage out of streams
- Reduce pollutant loads during dry weather to help meet the TMDL for a water body
- Meet bacteria water quality standards for contact recreation during dry weather flows
- Reduce toxicant and other pollutant discharges to a stream to restore the abundance and diversity of aquatic insects or fish

A well-designed IDDE program may not guarantee that water quality goals will be always be achieved. Indeed, if program managers can document that illicit discharges do not contribute to poor water quality, they may want to shift resources to other pollution sources or practices that do. Burton and Pitt (2002) offer a complete discussion on designing and conducting a receiving water investigation.

6.3 Crafting Implementation Strategies

In order to meet program goals, managers must devise cost-effective implementation strategies that are most appropriate for the types of illicit discharge problems they actually have. The community-wide illicit discharge potential (IDP) developed during the desktop analysis can be quite helpful in choosing implementation strategies. Table 18 presents implementation strategies that are geared to the findings of the community-wide IDP. As the community acquires more program experience, they can refine the strategies to better address program goals or unique watershed conditions (Table 19).

Perhaps the most important implementation strategy is targeting—screening, education and enforcement efforts should always be focused on subwatersheds, catchments or generating sites with the greatest IDP. Adaptability after program startup is also an important strategy. Strategies developed from the desktop analysis should be constantly adjusted to reflect knowledge gained from field screening, hotline reports and other monitoring information.

Table 18: Linking Implementation Strategies to Community wide IDP

Type	Examples of Implementation Strategy
Minimal IDP	• Conduct field screening of outfalls in the context of broader watershed assessment and restoration initiatives using the Unified Stream Assessment (CWP, 2004) or a comparable physical stream assessment approach that has broader focus and benefits. • Integrate IDDE program efforts into more comprehensive watershed assessment and restoration efforts where multiple objectives are being pursued (e.g., storm water education). • Target and coordinate with existing small watershed organizations as partners to accomplish inventory and data collection efforts. • Establish hotline to report suspicious discharges.
Clustered IDP	• Conduct limited sampling in the suspect areas. The most cost-effective approach will likely involve using outside laboratory services to avoid capital costs for special equipment (in some cases a municipal laboratory may be available for limited cost). • Select a small set of indicator parameters using the nature of historic problems and land use as a guide. • Target education program in problem areas. • Look for partnerships with local watershed groups to regularly monitor problem areas. • Establish a hotline to report suspicious discharges.
Severe IDP	• Establish a hotline to report suspicious discharges. • Conduct and repeat screening in all subwatersheds • Plan for more rigorous sampling approach to make establishment of internal laboratory set up more cost effective (i.e., plan for equipment expenditures for sample collection and analysis). Considerations include: expanding set of parameters to use as indicators, adopting a strategy for targeting intermittent discharges, and establishing in-stream stations to supplement screening effort. • Develop a community-specific chemical “fingerprint” of various flow sources to facilitate differentiation between likely flow sources. • Develop community-wide educational messages aimed at increasing public awareness and targeted education programs tailored to problem areas. • Look for partnerships with local watershed groups to be regular monitors of problem areas through an adopt-a-stream approach. • Emphasize cross-training of municipal employees to develop a broader reach of program efforts and lead by example by ensuring municipal facilities are not contributing to illicit discharge problem.

Table 19: Customizing Strategies for Unique Subwatershed Screening Factors		
Initial Problem Assessment	**Screening Factor** (from Table 14)	**Example Implementation Strategies**
Aging Sewer Infrastructure and/or Converted Combined System	• Complaints of sewage discharges • Poor dry weather quality • High outfall density • Septic to sewer conversion • Historic combined system • Aging sewers	• Institute a point of sale inspection and verification process. • Select a small set of indicator parameters that focuses on sewage connections. • Develop cost share program to assist property owners with connection correction.
Aging Septic Infrastructure and/or Converted Combined System	• Aging septic systems	• Develop targeted education program for septic system maintenance and institute a point of sale inspection and verification process. • Develop cost share capabilities to assist property owners with upgrade of system.
Discharges from Generating Sites	• Density of generating sites • Older industry • Past complaints and reports	• Link IDDE program to existing industrial NPDES discharge permits, and inspect storm water management pollution prevention plans. • Develop targeted training and technical assistance programs tailored to specific generating sites. • Aggressively enforce fines and other measures on chronic violators.
High Spill or Dumping Potential	• Past complaints and reports	• Establish a hotline and develop community-wide educational messages aimed at increasing public awareness. • Look for partnerships with local watershed groups to regularly monitor or adopt problem sites. • Increase number and frequency of used oil and hazardous waste recycling stations. • Post signs, with hotline reporting number at dumping sites.